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Phenomena of Jupiter's Satellites.

Day.	Satellite.	Phenomenon.		Telescope.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Observer.
1890 June 19	III.	Ecl. R.	First seen	E. Equat.	210	12 43 57	12 44 19	H. T
19	III.	Occ. D.	First contact	,,	,,	12 51 31	12 53	,,
19	III.		Last seen	,,	,,	12 55 45		,,
July 19 (*a*)	II.	Tr. Ing.	First contact	,,	,,	12 12 40	12 14	W. R.
19	II.		Bisection	,,	,,	12 13 58		,,
19	II.		Last seen	,,	,,	12 16 6		,,
26	I.	Tr. Ing.	First contact	Altaz.	100	9 17 29	9 21	L.
26	I.		Last seen	,,	,,	9 22 35		,,
26	III.	Tr. Egr.	First seen	E. Equat.	140	11 35 50	11 41	,,
26	III.		Bisection	,,	,,	11 37 53		,,
26	III.		Last contact	,,	,,	11 40 14		,,
28	II.	Occ. R.	First seen	Altaz.	100	11 36 4	11 37	S. D.
Aug. 1	III.	Occ. D.	First contact	E. Equat.	60	8 52 51	8 55	T.
1	III.		Last seen	,,	,,	8 57 6		,,
1	III.	Ecl. R.	First seen	,,	210	12 44 48	12 45 54	T.
1	III.		First seen	Altaz.	100	12 44 2		H. F.
1	III.		Full brightness	,,	,,	12 46 11		,,
1	I.	Occ. D.	First contact	E. Equat.	210	13 54 11	13 56	T.
1	I.		Last seen	,,	,,	13 57 46		,,

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Day.		Satellite.	Phenomenon.		Telescope.	Power.	Mean Solar Time of Observation.	Mean Solar Time of N.A.	Observer.
							h m s	h m s	
1890 Aug.	3 (*b*)	I.	Ecl. R.	First seen	E. Equat.	210	10 47 22	10 46 44	T.
	4 (*c*)	II.	Occ. D.	Last seen	,,	,,	10 55 46	10 56	H.
	4	II.		First contact	Altaz.	100	10 55 47		H. F.
	4	II.		Last seen	,,	,,	10 59 18		,,
	18	I.	Tr. Ing.	First contact	E. Equat.	140	8 56 15	8 58	L.
	18	I.		Bisection	,,	,,	8 58 20		,,
	18	I.		Last seen	,,	,,	9 0 36		,,
	22 (*a*)	II.	Ecl. R.	First seen	,,	210	8 33 40	8 33 28	T.
	29	III.	Ecl. R.	First seen	Altaz.	100	11 8 4	11 9 41	S. D.
	29	III.		First seen	E. Equat.	70	11 9 26		A. M.
Sept.	9 (*d*)	I.	Occ. D.	First contact	,,	140	11 34 52	11 36	L.
	9	I.		Last seen	,,	,,	11 36 52		,,
	10	I.	Tr. Ing.	First contact	,,	70	8 41 2	8 44	H.
	10	I.		Last seen	,,	,,	8 44 46		,,
	10	I.	Tr. Egr.	First seen	,,	,,	11 0 29	11 4	,,
	10	I.		Last contact	,,	,,	11 7 48		,,
	11	I.	Ecl. R.	First seen	,,	,,	9 20 23	9 19 40	H. F.
	12	II.	Occ. D.	First contact	,,	210	11 27 36	11 31	A. D.
	12	II.		Bisection	,,	,,	11 29 40		,,
	12	II.		Last seen	,,	,,	11 32 25		,,

Day.	Satellite.	Phenomenon.		Telescope.	Power.	Mean Solar Time of Observation.	Mean Solar Time of N.A.	Observer.
						h m s	h m s	
1890 Sept. 13	III.	Occ. R.	First seen	Tr. Circle	195	8 48 57	8 51	L.
13 (*e*)	III.	Ecl. D.	Last seen	E. Equat.	140	9 17 36	9 18 41	„
19 (*f*)	I.	Tr. Egr.	First contact	Altaz.	100	7 15 54	7 20	„
20 (*g*)	III.	Occ. D.	First contact	E. Equat.	210	8 35 59		A. D.
20	III.		Bisection	„	„	8 42 18	8 47	„
20	III.		Last seen	„	„	8 48 22		„
23 (*h*)	II.	Ecl. R.	First seen	Lassell Refl.	280	8 20 14		L.
23 (*i*)	II.		Full brightness	„	„	8 21 51	8 18 11	„
23 (*k*)	II.		First seen	E. Equat.	140	8 18 15		H.
23	II.		Full brightness	„	„	8 20 9		„
24	IV.	Occ. R.	Last contact	„	„	9 28 43	9 32	A. D.
24	IV.		Last contact	Altaz.	100	9 29 55		W. R.
25 (*l*)	I.	Occ. D.	Last seen	E. Equat.	140	9 34 13	9 42	H.
27 (*h*)	I.	Ecl. R.	First seen	„	„	7 39 17	7 39 4	„
27	I.		Full brightness	„	„	7 41 33		„
Oct. 3	I.	Tr. Ing.	First contact	„	„	8 37 28		„
3	I.		Bisection	„	„	8 41 38		„
3	I.		Last seen	„	„	8 44 42	8 41	„
3	I.		First contact	Altaz.	100	8 37 59		W. R.
3	I.		Last seen	„	„	8 45 38		„

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Day.	Satellite.	Phenomenon.	Telescope.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Observer.
1890 Oct. 11	I.	Occ. D. First contact	Lassell Refl.	280	7 50 46	7 54	L.
11	I.	Last seen	,,	,,	7 55 1		,,
11 (*m*)	I.	First contact	E. Equat.	70	7 52 45		H. F.
11	I.	Bisection	,,	,,	7 54 16		,,
11	I.	Last seen	,,	,,	7 56 26		,,
12	I.	Tr. Egr. First seen	Lassell Refl.	280	7 19 25	7 22	A. D.
12	I.	Bisection	,,	,,	7 21 35		,,
12	I.	Last contact	,,	,,	7 23 40		,,
27	I.	Occ. D. First contact	,,	,,	6 10 7	6 11	H. T.
27	I.	Last seen	,,	,,	6 13 33		,,
27	I.	Last seen	E. Equat.	140	6 13 17		H.
28 (*n*)	I.	Tr. Egr. Last contact	,,	,,	5 43 10	5 41	L.
28 (*h*)	IV.	Ecl. R. First seen	,,	,,	8 36 16	8 41 40	,,
28	IV.	Full brightness	,,	,,	8 38 46		,,
Nov. 4 (*o*)	I.	Tr. Ing. First contact	Altaz.	100	5 15 16	5 17	W. R.
4	I.	Last seen	,,	,,	5 20 55		,,
5 (*h*)	I.	Ecl. R. First seen	Lassell Refl.	280	6 14 35	6 13 31	L.
5 (*p*)	I.	Full brightness	,,	,,	6 17 38		,,
5 (*q*)	IV.	Tr. Egr. Last contact	,,	,,	6 25 23	6 39	,,

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Day.	Satellite.	Phenomenon.	Telescope.	Power.	Mean Solar Time of Observation.	Mean Solar Time of N.A.	Observer.
					h m s	h m s	
1890 Nov. 17	I.	Tr. Ing. First contact	Altaz.	100	5 32 52	5 35	A. D.
17	I.	Bisection	,,	,,	5 39 21		,,
17	I.	Last seen	,,	,,	5 44 0		,,
17	I.	First contact	E. Equat.	70	5 37 25		H.
17	I.	Bisection	,,	,,	5 40 15		,,
17	I.	Last seen	,,	,,	5 42 54		,,

Notes.

(*a*) *Jupiter* very ill-defined. (*b*) Diffused. (*c*) Observation not considered good; power too high.

(a) Cloudy directly afterwards.

(*d*) Satellite scarcely visible, times necessarily rough. Last contact may have been really obscuration by cloud.

(*e*) Image bad; observation not considered good.

(*f*) Cloudy; observation very doubtful. (*g*) *Jupiter* very tremulous and ill-defined.

(*h*) Observation considered good. (*i*) Uncertain to quite 20^s. (*k*) Definition good.

(*l*) Sky misty; satellite very faint; *Jupiter* ill-defined. The satellite seemed to merge in the limb at the time noted and was no more seen.

(*m*) Definition bad. (*n*) *Jupiter* very ill-defined; foggy. (*o*) Satellite faint; twilight. (*p*) Thin cloud, observation rough.

(*q*) The first contact was perhaps 6^h 19^m when the satellite was glimpsed for a few seconds. There can be no doubt about last contact. The satellite was followed till 6^h 45^m; at 6^h 30^m it was right away from *Jupiter*.

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The clear aperture of the mirror of the Lassell Reflector is 24 inches, of the object-glass of the Transit Circle 8·1 inches, of the E. Equatorial 6·7 inches, of the Altazimuth $3\frac{3}{4}$ inches, and of the Simms' No. 1, 3 6 inches.

The initials H. T., A. D., T., L., H., J. P., S. D., W. R., H. F., and A. M., are those of Mr. Turner, Mr. Downing, Mr. Thackeray, Mr. Lewis, Mr. Hollis, Mr. Power, Mr. Dolman, Mr. Russell, Mr. Furner, and Mr. Miskin respectively.

Royal Observatory, Greenwich:
1891 *January* 1.

Errata in Greenwich Observations of Comet a 1890 (*Brooks*).

(*Communicated by the Astronomer Royal.*)

Monthly Notices, vol. l. p. 528.

Greenwich Mean Solar Time of Observation. 1890.

	d	h	m	s		d	h	m	s
for Aug.	4	10	13	13·6	*read* Aug.	4	10	14	13
,,		10	21	9 0	,,		10	22	9
,,		10	29	4·3	,,		10	30	4
,,	15	10	25	41·0	,,	15	10	26	41
,,		10	28	24·1	,,		10	29	24
,,		10	32	28·6	,,		10	33	29

Monthly Notices, vol. li. p. 49.

Greenwich Mean Solar Time of Observation, 1890.

	d	h	m	s		d	h	m	s
for Sept.	14	8	22	58	*read* Sept.	14	8	23	48
,,		8	33	57	,,		8	34	37
,,		8	33	57	,,		8	34	37
,,	15	8	3	30	,,	15	8	4	29
,,		8	27	16	,,		8	28	16
,,		8	48	2	,,		8	49	2
,,		8	48	2	,,		8	49	2

The comparisons of the clock Earnshaw (by which the times of observation were recorded) with the Sidereal Standard Clock were found to be 1^m in error from 1890 July 2 to Sept. 22. A mistake of 1^m in the computed time of one of the observations on September 14 has also been found.

Royal Observatory, Greenwich:
1891 *January* 14.